

## **REMARKS/ARGUMENT**

Applicants have canceled claims 1-24 and have added new claims 25-36.

Accordingly, claims 25-36 are currently pending in the present application. It is respectfully submitted that the new claims do not add new matter and have adequate support throughout the Specification.

Furthermore, Applicants have amended the drawings and Specification to address various informal and non-substantive issues expressed in the Office Action. It is respectfully submitted that the amendments to the drawings and Specification are amendments in form only, do not add new matter, and have adequate support throughout the Specification.

It is respectfully submitted that the attached Substitute Specification (Appendix C) contains no new matter and meets the requirement of 37 C.F.R. §1.125.

Otherwise, Applicants respectfully traverse all objections and claim rejections for the reasons that follow:

### **I. OBJECTIONS TO THE DRAWINGS**

Figures 2a1-2a4 of the drawings were objected to for not being designated by respective "Prior Art" legends. Accordingly, Figures 2a1-2a4 have been amended to show respective "Prior Art" designations.

The drawings were also objected to for including reference characters that identify parts in alleged prior art arrangements and modified forms of the parts in the remaining drawings. Accordingly, Figures 1a, 2b, and 3 have been amended to include unique reference characters for designating features according to the present invention.

The drawings were also objected to for failing to include the details described on page 15, lines 11-14, which recite cross-hatching of the recess 20. Accordingly, Figure 1 has been amended to include cross-hatching of the recess 20.

The drawings were also objected to because reference character "A" has been used to designate both an axis and a spindle on page 18, lines 8 and 14. Accordingly, the Specification has been amended to make clear that reference character "A" refers to the axis of Figure 3 and reference character "24" refers to the tool spindle.

The drawings were also objected to because reference character "E" designates both an angle and a plane on page 18, lines 18 and 19. Accordingly, the Specification has been amended to make clear that reference character "E" refers to an angle.

The drawings were also objected to for not including various reference characters referred to in the Specification and for including reference characters not described in the Specification. The Figures and the Specification have been amended to address these concerns.

Submitted herewith on a separate sheet of paper is a "Request for Entry of Proposed Drawing Corrections," together with red-lined versions of the Figures, which incorporate the drawing amendments described above. It is respectfully submitted that the amendments to the Specification and Drawings address the concerns expressed in the Office Action. Accordingly, it is kindly requested that the objections to the drawings be withdrawn.

## **II. OBJECTIONS TO THE DISCLOSURE**

The disclosure was objected to for failing to include section headings. Accordingly, the disclosure has been amended to include section headings.

The disclosure was also objected to for making reference to specific claims. Accordingly, the reference to these claims has been removed from the disclosure.

The disclosure was also objected to for not including Figures 2b1 and 2b2, referenced on page 16. Accordingly, the two drawings of Figure 2b have been separately labeled as "2b1" and "2b2," respectively.

The disclosure was also objected to for allegedly containing a nonsensical sentence beginning on page 18, line 18. Although it is believed that this sentence is currently in proper form, the sentence has been amended to clarify its meaning.

The disclosure was also objected to for failing to provide proper antecedent basis for the subject matter of originally filed claims 8-11, 13, 23, and 24. Accordingly, the Specification has been amended to include the subject matter of these claims. It is respectfully submitted that this amendment does not add new matter, at least because the subject matter added to the Specification was contained in the claims as originally filed.

For at least the foregoing reasons, it is kindly requested that the objections to the disclosure be withdrawn.

**III. REJECTIONS OF CLAIMS 2, 3, 8-11, 13, 17, 18, 23, AND 24  
UNDER 35 U.S.C. § 112**

Claims 2, 3, 8-11, 13, 17, 18, 23, and 24 were rejected under 35 U.S.C. § 112, first paragraph, for allegedly containing subject matter which was not described in the Specification in such a way as to enable one skilled in the art to make and/or use the invention.

All of claims 2, 3, 8-11, 13, 17, 18, 23, and 24 have been canceled herein without prejudice, thereby mooting the rejections of these claims. Accordingly, it is kindly requested that the rejections of claims 2, 3, 8-11, 13, 17, 18, 23, and 24 under 35 U.S.C. § 112, first paragraph, be withdrawn. Furthermore, since new claims 26, 29, 31, 33, and 36 contain features analogous to those of canceled claims 2, 3, 8-11, 13, 17, 18, it is respectfully submitted that these claims enable one skilled in the art to make and/or use the inventions recited in these claims.

The Office Action asserts that a specific function used to determine the size and/or shape of the recess has not been described in the Specification, and as such, undue experimentation would be required of one skilled in the art, **since numerous parameters would be involved.**

Each of claims 26 and 33 recite that "the at least one parameter is selected from the group consisting of size of a force to be transmitted, geometry of connecting parts of the roller-bearing arrangement, distortion of the connecting parts of the roller-bearing arrangement, and bearing play." It is respectfully submitted that a person of ordinary skill in the art would not have to engage in undue experimentation to make and/or use the inventions of claims 2 and 17.

Regarding claims 29 and 36, the Office Action asserts that the recitation that "the recesses are arranged symmetrically" is not described or shown. Respectfully, Applicants traverse.

The enablement requirement of 35 U.S.C. § 112, first paragraph, does not require detailed procedures for making and using the invention, if the description is sufficient to permit those skilled in the art to do so, without undue experimentation. M.P.E.P. § 2164.

Claims 29 and 36 recite that "the recesses . . . are arranged symmetrically relative to a plane . . . described by the longitudinal axis of the journal and the pivot axis of the journal." This recitation is more than sufficient to permit those skilled in the art to make and use the inventions of claims 29 and 36, since the "plane" recited in these claims is clearly defined by two perpendicular axes. Thus, these claims clearly enable a person of ordinary skill in the art to properly arrange the recesses -- the recesses are arranged symmetrical relative to the plane.

Regarding claim 31, the Office Action asserts that "blind hole" is not sufficiently described or shown. Respectfully, Applicants traverse. The term "blind hole" is understood in the art to refer to a hole that perforates a structure, without extending all the way through the structure. Within the context of claim 13, it is clear that the "blind hole" bore is simply a bore that does not extend fully through at least one outer surface of the bearing part, as illustrated, for example, in Figure 1a. In this manner, one of ordinary skill in the art would be enabled to make and/or use the invention of claim 13.

#### **IV. REJECTIONS OF CLAIMS 1-24 UNDER 35 U.S.C. § 112**

Claims 1-24 were rejected as indefinite under 35 U.S.C. § 112, second paragraph, for allegedly failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention.

Claims 1-24 have been canceled herein without prejudice, thereby mooting the rejections of these claims. Accordingly, it is kindly requested that the rejections of claims 1-24 under 35 U.S.C. § 112, second paragraph, be withdrawn. Furthermore, it is respectfully submitted that newly added claims 25-36 are definite under 35 U.S.C. § 112, second paragraph.

**V. REJECTIONS OF CLAIMS 1-7 UNDER 35 U.S.C. § 102(b) AS  
ANTICIPATED BY THATCHER**

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Claims 1-7 were rejected under 35 U.S.C. § 102(b) as anticipated by U.S. Patent No. 4,575,361 to Thatcher (hereinafter "Thatcher"). Respectfully, Applicants traverse.

Claims 1-7 have been canceled without prejudice, thereby mooting the rejections of these claims. Accordingly, it is kindly requested that the rejections of claims 1-7 under 35 U.S.C. § 102(b) be withdrawn. Furthermore, it is respectfully submitted that newly added claims 25-36 are not anticipated by Thatcher.

Independent claim 25 relates to an articulated yoke of a universal-joint propeller shaft, the propeller shaft having a drive side and a take-off side, the articulated yoke including at least one leg member configured to couple to a machine element on at least one of the drive side and the take-off side of the universal-joint propeller shaft; at least one bearing part connected to the leg member, the bearing part including a supporting surface defining a bore therethrough; and a roller-bearing arrangement to position a journal of a differential-pinion shaft, the roller-bearing arrangement having a plurality of rolling elements configured to enable rotation of the journal about a longitudinal axis of the journal with respect to the supporting surface, the roller-bearing arrangement having a region of high stress adjacent to the journal, at least one of the rolling elements being highly stressed at the region of high stress, the supporting surface configured to support at least a portion of the roller-bearing arrangement; wherein the supporting surface of the bearing part is provided with a recess in the region of high stress, the recess including a width in a direction around the journal, a depth in a direction radial of the journal, and a direction of extension extending toward a pivot axis of the journal in a direction parallel to the longitudinal axis of the journal, the width and the depth of the recess diminishing along the direction of extension.

Thatcher purportedly relates to universal joint yoke having a hub from which extend a pair of parallel arms. (Thatcher, Abstract). As characterized, each of the arms includes a pair of sides having supporting surfaces 20, between which is situated a depression 22. The supporting surfaces 20 are configured to receive a bearing cup. (Thatcher, col. 2, lines 21-31).

To reject a claim based on anticipation, a single prior art reference must identically disclose each and every feature of a claimed invention. See Verdegaal Bros. V. Union Oil Co. of California, 814 F.2d 628, 631 (Fed. Cir. 1987). Furthermore, in order for the Examiner to rely on an alleged "inherent feature" of the prior art reference, the Examiner must demonstrate that the feature is necessarily present in the reference. In re Robertson, 169 F.3d 743, 745 (Fed. Cir. 1999). The fact that a certain result or characteristic may occur or be present in the reference is insufficient to establish inherency of that result or characteristic. In re Rijckaert, 9 F.3d 1531, 1534 (Fed. Cir. 1993).

In accordance with this standard, it is respectfully submitted that Thatcher does not identically disclose "at least one bearing part . . . including a supporting surface **defining a bore therethrough**," as recited in claim 25. As described above, the universal joint yoke of Thatcher includes a pair of parallel arms for supporting a bearing cup. Thus, the arms of Thatcher simply do not define a "bore."

Further regarding claim 25, it is respectfully submitted that Thatcher does not identically disclose "a roller-bearing arrangement to position a journal of a differential-pinion shaft, the roller-bearing arrangement having a plurality of rolling elements configured to enable rotation of the journal about a longitudinal axis of the journal with respect to the supporting surface," as recited in this claim. As described above, the arms of the Thatcher universal joint yoke are configured to receive a bearing cup on supporting surfaces 20. Thatcher simply does not disclose roller-bearing arrangements, much less roller-bearing arrangements having "rolling elements," as recited in claim 25.

Further regarding claim 25, it is respectfully submitted that Thatcher does not identically disclose that "the supporting surface of the bearing part is provided with a recess in the region of high stress," as recited in this claim. Thatcher does describe a depression 22 arranged between supporting surfaces of the arms of a yoke. However, Thatcher simply does not disclose that the depression 22 is provided in a region of a stressed element, much less a "highly stressed rolling element," as recited in claim 25. Furthermore, it cannot be said that the depression 22 of Thatcher is inherently provided in a region of a stressed element, since it cannot be said that such a situation necessarily must exist.

Further regarding claim 25, it is respectfully submitted that Thatcher does not identically disclose that "the recess [includes] a width in a direction around the journal, a depth in a direction radial of the journal, and a direction of extension extending toward a pivot axis of the journal in a direction parallel to the longitudinal axis of the journal, the width and the depth of the recess diminishing along the direction of extension," as recited in this claim. There is simply nothing in Thatcher that indicates that the depression 22 includes any dimensions that change with respect to a direction of extension of the depression 22.

For at least the foregoing reasons, it is respectfully submitted that claim 25 is allowable over Thatcher. Furthermore, since claims 26-31 ultimately depend from claim 25, since independent claim 32 recites features analogous to those of claim 25, and since claims 33-36 ultimately depend from claim 32, it is respectfully submitted that these claims are allowable over Thatcher for at least the same reasons.

## **VI. REJECTIONS OF CLAIMS 1-6, 8, 16-21, AND 23 UNDER 35 U.S.C. § 102(b) AS ANTICIPATED BY KLEIN**

Claims 1-6, 8, 16-21, and 23 were rejected under 35 U.S.C. § 102(b) as anticipated by German Published Patent Application No. 36 05 746 to Klein (hereinafter "Klein"). Specifically, the Office Action asserts that Applicants' explanation of relevance and the International Search Report disclose all the limitations of these claims.

Claims 1-6, 8, 16-21, and 23 have been canceled without prejudice, thereby mooting the rejections of these claims. Accordingly, it is kindly requested that the rejections of claims 1-6, 8, 16-21, and 23 under 35 U.S.C. § 102(b) be withdrawn. Furthermore, it is respectfully submitted that newly added claims 25-36 are not anticipated by Klein.

Klein purportedly relates to a universal joint consisting of a spider and respective yokes. Each of the yokes includes forked arms pivotally mounted on an end pin of the spider. The shape of the inner circumferential surface varies in the circumferential direction, so that the inner radius is larger in the circumferential area of loading by higher forces than in the circumferential area of loading by smaller forces.

Initially, it is noted that Applicants **did not** provide the USPTO with a statement of relevance concerning Klein, as asserted in the Office Action. To the contrary, Applicants merely provided the USPTO with an English version of the International Search Report, which indicates the International Authority's belief that Klein is relevant to the claims under consideration. However, nowhere in the Specification or correspondence with the USPTO, did Applicants' ever discuss Klein, much less "explain the relevance" of Klein. Furthermore, to the extent that the International Authority is correct in that Klein is relevant to the subject matter of claims 1-6, 8, 16-21, and 23, this assumption, in and of itself, falls far short of what is necessary to demonstrate that Klein anticipates these claims, since the standards of examination used by the International Authority and the USPTO are entirely different.

Nonetheless, it is respectfully submitted that Klein does not identically disclose that "the recess [includes] a width in a direction around the journal, a depth in a direction radial of the journal, and a direction of extension extending toward a pivot axis of the journal in a direction parallel to the longitudinal axis of the journal, the width and the depth of the recess diminishing along the direction of extension," as recited in claim 25. As described above, Klein discloses that the inner circumference varies in accordance with the magnitude of forces. However, it is believed that Klein does not disclose that the inner circumference varies along a "direction of extension."

For at least the foregoing reasons, it is respectfully submitted that claim 25 is allowable over Klein. Furthermore, since claims 26-31 ultimately depend from claim 25, since independent claim 32 recites features analogous to those of claim 25, and since claims 33-36 ultimately depend from claim 32, it is respectfully submitted that these claims are allowable over Klein for at least the same reasons.

## **VII. REJECTIONS OF CLAIMS 1-4, 8-13, 16-18, 23 AND 24 UNDER 35 U.S.C. § 102(b) AS ANTICIPATED BY PETRZELKA '827**

Claims 1-4, 8-13, 16-18, 23, and 24 were rejected under 35 U.S.C. § 102(b) as anticipated by U.S. Patent No. 4,412,827 to Petrzelka et al. (hereinafter "Petrzelka '827"). Respectfully, Applicants traverse.

Claims 1-4, 8-13, 16-18, 23, and 24 have been canceled without prejudice, thereby mooting the rejections of these claims. Accordingly, it is kindly requested that the rejections of claims 1-4, 8-13, 16-18, 23, and 24 under 35 U.S.C. § 102(b) be withdrawn. Furthermore, it is respectfully submitted that newly added claims 25-36 are not anticipated by Petrzelka '827.

Petrzelka '827 purportedly concerns a universal joint, including a yoke arm 10 having a bore 16 with a conical surface 12 extending over a portion of the bore 16. (Petrzelka '827, col. 3, lines 48-51). The conical surface 12 is disclosed as extending radially outwardly within the bore 16. (Petrzelka '827, col. 3, lines 54-57; Figures 4, 5).

It is respectfully submitted that Petrzelka '827 does not disclose a recess "including a width in a direction around the journal, a depth in a direction radial of the journal, and a direction of extension extending toward a pivot axis of the journal in a direction parallel to the longitudinal axis of the journal, the width and the depth of the recess diminishing along the direction of extension," as recited in claim 25. As described above, Petrzelka '827 discloses that the conical surface 12 radially extends outwardly in the bore 16. In this manner, the depth of the conical surface 12 changes relative to the bore 16 in a direction along the bore axis. However, Petrzelka '827 does not disclose that the width of the conical surface 12 diminishes along the direction of extension and, in this manner, Petrzelka '827 is simply missing a critical feature of claim 25.

For at least the foregoing reasons, it is respectfully submitted that claim 25 is allowable over Petrzelka '827. Furthermore, since claims 26-31 ultimately depend from claim 25, since independent claim 32 recites features analogous to those of claim 25, and since claims 33-36 ultimately depend from claim 32, it is respectfully submitted that these claims are allowable over Petrzelka '827 for at least the same reasons.

**VIII. REJECTIONS OF CLAIMS 1-4, 8-13, 16-18, 23 AND 24 UNDER  
35 U.S.C. § 102(b) AS ANTICIPATED BY HEIER**

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Claims 1-4, 8-13, 16-18, 23, and 24 were rejected under 35 U.S.C. § 102(b) as anticipated by U.S. Patent No. 5,868,625 to Heier et al. (hereinafter "Heier"). Respectfully, Applicants traverse.

Claims 1-4, 8-13, 16-18, 23, and 24 have been canceled without prejudice, thereby mooting the rejections of these claims. Accordingly, it is kindly requested that the rejections of claims 1-4, 8-13, 16-18, 23, and 24 under 35 U.S.C. § 102(b) be withdrawn. Furthermore, it is respectfully submitted that newly added claims 25-36 are not anticipated by Heier.

Heier purportedly relates to a bipole joint for small articulation angles and high torque transmission (Heier, Abstract). As characterized, a first joint part 1 includes arms 3 to support bearing faces 4, 5 via rollers 7, 8, respectively. (Heier, col. 3, lines 52-55). On a side of the rollers facing away from the bearing faces 4, 5, Heier provides a recesses 32 so that the first joint part 1 may be assembled with the arms 3. Specifically, the recesses 32 are used to receive the arms when the first joint part 1 is introduced. (Heier, col. 1, lines 50-58).

The Office Action asserts that the recesses 32 of Heier constitute "at least one recess" provided in a supporting surface for the bearing part, as recited in claim 25. However, as described above, the recesses 32 of Heier are provided **behind the rollers on a side facing away from the bearing surfaces**. Thus, the recesses 32 are not provided on the "supporting surface of the bearing part," as recited in claim 25. Furthermore, Heier states that the purpose of recesses 32 is to facilitate assembly of the first joint part with the arms, not to relieve the stress of a rolling element. Thus, Heier simply does not disclose that the recesses 32 are provided "in a region of high stress," as recited in claim 25.

For at least the foregoing reasons, it is respectfully submitted that claim 25 is allowable over Heier. Furthermore, since claims 26-31 ultimately depend from claim 25, since independent claim 32 recites features analogous to those of claim 25, and since claims 33-36 ultimately depend from claim 32, it is respectfully submitted that these claims are allowable over Heier for at least the same reasons.

## **IX. REJECTIONS OF CLAIMS 1-13 AND 16-24 UNDER 35 U.S.C. § 102(b) AS ANTICIPATED BY PETRZELKA '679**

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Claims 1-13 and 16-24 were rejected under 35 U.S.C. § 102(b) as anticipated by U.S. Patent No. 4,512,679 to Petrzelka et al. (hereinafter "Petrzelka '679"). Respectfully, Applicants traverse.

Claims 1-13 and 16-24 have been canceled without prejudice, thereby mooting the rejections of these claims. Accordingly, it is kindly requested that the rejections of claims 1-13 and 16-24 under 35 U.S.C. § 102(b) be withdrawn. Furthermore, it is respectfully submitted that newly added claims 25-36 are not anticipated by Petrzelka '679.

Petrzelka '679 purportedly relates to a universal joint, including a pair of yoke halves connected by a trunnion cross having journals extending into bores of the respective yoke halves. (Petrzelka '679, Abstract). As characterized, the outer surface 11 of a bearing bush 7 is provided with grooves 12, which extend across the circumference of an outer face 11 of a bearing bush 7 in a region 15. (Petrzelka '679, col. 3, lines 50-67). In one embodiment, the grooves 12 are disclosed as extending in a yoke bore from an innermost end to an outermost end, so that the distance of the grooves 12 from a centerline increases (i.e., the depth of the grooves 12 increases in a direction toward the outermost end). (Petrzelka '679, col. 4, lines 4-26). } ok

The Office Action asserts that Petrzelka '679 discloses grooves 12 that vary in width. However, as described above, Petrzelka '679 purports to disclose grooves 12 that only change in depth, not width (i.e., the distance from the bottom of the grooves 12 to a longitudinal centerline increases in a direction toward the outermost end). Petrzelka '679 simply does not disclose that the grooves 12 extend toward the outermost end such that "the width . . . of the recess [diminishes] along the direction of extension," as recited in claim 25. In fact, Figures 3 and 5 of Petrzelka '679 appear to show that the grooves 12 have constant width along the longitudinal extension of the bore toward the outermost end. (Petrzelka '679, Figures 3, 5).

For at least the foregoing reasons, it is respectfully submitted that claim 25 is allowable over Petrzelka '679. Furthermore, since claims 26-31 ultimately depend from claim 25, since independent claim 32 recites features analogous to those of claim 25, and since claims

33-36 ultimately depend from claim 32, it is respectfully submitted that these claims are allowable over Petrzelka '679 for at least the same reasons.

**X. REJECTIONS OF CLAIMS 14 AND 15 UNDER 35 U.S.C. § 103(a)**

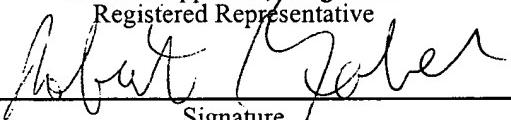
Claims 14 and 15 were rejected under 35 U.S.C. § 103(a) as unpatentable over Thatcher in view of Soviet Union Published Patent No. 1284-804 (hereinafter "SU '804"). Respectfully, Applicants traverse.

Claims 14 and 15 have been canceled without prejudice, thereby mooted the rejections of these claims. Accordingly, it is kindly requested that the rejections of claims 14 and 15 under 35 U.S.C. § 103(a) be withdrawn. Furthermore, it is respectfully submitted that newly added claims 25-36 are patentable over Thatcher in view of SU '804, at least because these claims do not relate to methods of producing a recess in a supporting surface.

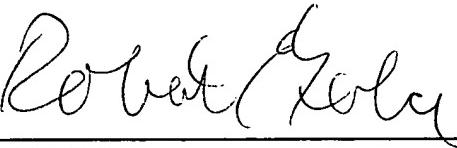
**XI. CONCLUSION**

In view of the foregoing, it is respectfully submitted that all pending claims are currently in allowable condition. Accordingly, reconsideration and prompt allowance of all pending claims is therefore earnestly solicited.

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as First Class Mail in an envelope addressed to: Commissioner for Patents, Washington, D.C. 20231, on February 18, 2003:

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Robert C. Faber  
Name of applicant, assignee or  
Registered Representative  
  
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Signature  
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February 18, 2003  
Date of Signature

Respectfully submitted,

  
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RCF:BND:msd

**APPENDIX B**  
**VERSION WITH MARKINGS TO SHOW CHANGES MADE**  
**37 C.F.R. § 1.121(b)(iii) AND (c)(ii)**

**SPECIFICATION:**

**Please insert the following before the paragraph beginning on page 1, line 5:**

**FIELD OF THE INVENTION**

**Please insert the following before the paragraph beginning on page 1, line 13:**

**BACKGROUND INFORMATION**

**Please insert the following before the paragraph beginning on page 4, line 19:**

**SUMMARY OF THE INVENTION**

**Please insert the following before the paragraph beginning on page 11, line 7:**

**BRIEF DESCRIPTION OF THE DRAWINGS**

**Please insert the following before the paragraph beginning on page 12, line 4:**

**DETAILED DESCRIPTION**

**Page 1, line 5:**

The invention relates to an articulated yoke[, having in detail the features of the preamble of claim 1; also] and to a method for the production of a supporting surface for the achievement of a uniform distribution of load over the rolling members of a bearing arrangement for journals of differential-pinion shafts in an articulated yoke and a bearing arrangement for mounting a journal in an articulated yoke.

**Page 5, line 12:**

[The solution according to the invention is characterized by the features of claims 1, 14 and 16. Advantageous embodiments are reproduced in the respective dependent claims.]

**Page 12, line 4:**

Figures 2a1 to 2a4 illustrate in a diagrammatically simplified view, and not to scale, the deformations arising in the bore in the case of a conventional design of an articulated yoke with a cylindrical supporting surface, and hence the distribution of forces in the bearing arrangement. For this purpose, an extract from a universal-joint arrangement 1 for a journal bearing 2 is shown (not to scale) in the installed position in a sectional view through a differential-pinion shaft 3 mounted in the articulated yoke [4] in a plane describable by the journal axis Z1 and perpendicular to the pivot axis G. Figures 2a1 and 2a2 merely illustrate here the mounting of the journal 6 of the journal arrangement 5 in a first yoke half 4.1 of the articulated yoke. The initial positions, without load, of the individual bearing connection elements, differential-pinion shaft 3 and yoke half 4.1, are illustrated here in broken lines. The continuous lines illustrate the deformations arising at the bearing connection elements, differential pinion shaft 3 and yoke half 4.1, under the influence of the circumferential force. The yoke half 4.1 comprises a leg member 7 and a bearing part 8, in which a bore 9 is disposed. The bore 9 here forms a supporting surface 10 for supporting at least part of a roller bearing arrangement, not shown here in detail, for mounting the journal 6 of the differential-pinion shaft 3 in the bore 9 of the yoke half 4.1. The effect of the oblique position  $b_B$  of the bore arising because of the angle of inclination  $a$  of the journal bending line is that the individual elements of the roller-bearing arrangement, not shown here in detail, which is provided in the bore 9 for mounting the journal 6, cannot be appropriately guided parallel to one another under load, an inclination of the elements of the bearing arrangement bearing the running track and hence of the roller members, taking place. Under the influence of the circumferential force, a displacement  $f_B$  of the bore 9 also occurs. The overall travel of the displacements arising is characterized by  $f_G$ .  $g$  in figure 2a indicates the total angle of twist.

**Page 15, line 7:**

According to the invention, therefore, a yolk half 4.1a is provided, including a supporting surface 10a, a bearing part 8a, a leg member 7a, an outer surface 18a, an inner surface 22a, and a bore 9a. [it] It is proposed that the supporting surface 10a [10], which is formed by the bore 9a [9], be provided with recesses 20 locally in the regions which support the most highly stressed rolling elements 14 of the roller-bearing arrangement 11. For reasons of clarification, the yoke half 4.1a [4.1] is reproduced in section in the case illustrated, while the local recess 20 made in the supporting surface 10a [10] is reproduced with double hatching. It becomes apparent from this that the local recess 20 extends substantially from the outer surface 18a [18] of the yoke half 4.1a [4.1] toward the pivot axis parallel to the journal axis Z1, preferably, as shown in Figure 1a, over the entire extent of the bore 9a [9] in the direction parallel to the journal axis Z1. Furthermore, the recess 20 extends in the circumferential direction, in other words in the radial direction based on the journal axis Z1 viewed in the bore 9a [9]. The extent in the circumferential direction occurs here via the extent of different size toward the pivot axis [C] parallel to the journal axis Z1. In accordance with the load arising according to Figures 2a3 and 2a4 in a conventional embodiment with cylindrical bore 9, the recess 20 possesses the maximum dimensions in terms of depth t and extent in the circumferential direction, here designated as width b, in the region of the outer surface 18a [18] of the yoke half 4.1a [4.1] in the bore 9a [9]. These dimensions diminish here in the direction of the pivot axis. The force distribution achievable in the bore with this supporting structure is shown in figures 2b1 and 2b2.

**Page 16, line 8:**

Figure 1b illustrates in section, with reference to two views I-I and II-II, in contrast with one another, the change in the profile pattern of the recess 20 toward the pivot axis G parallel to the journal axis Z1 starting from the outer surface 18a [18] of the yoke half 4.1a [4.1]. It becomes apparent from this that the profile width b1 and the profile depth t1 [d1] are designed to be much greater in the region of the outer surface 18a [18] of the yoke half 4.1a [4.1] than in

the region of the inner surface 22a [22] of the yoke half 4.1a [4.1]. The dimensions in this region are designated b2 and t2.

**Page 16, line 18:**

The embodiment of a recess 20 shown in figures 1a and 1b represents a preferred design. The solution according to the invention is not, however, tied to this embodiment. Modifications are conceivable in the presentation of the profile, especially as regards the shape of the profile of the recess and/or the design of the profile in respect of its width, depth and length, in other words its extent in the direction of the pivot axis G parallel to the journal axis Z1 of the journal mounted in the yoke half 4.1a [4.1]. The specific design of the recess 20 depends here on the specific individual case and is left to the discretion of the responsible person skilled in the art. The size of the local recess in the supporting surface is determined here by at least one of the parameters listed below, but preferably the combination of the individual parameters:

**Please insert the following paragraphs before the paragraph beginning on page 17, line 24:**

In accordance with another exemplary articulated yoke of the present invention, the recesses 20 are arranged symmetrically relative to a plane, which is described by the journal axis of the journal 6, mounted in the articulated yoke, of a differential-pinion shaft 3 and the pivot axis G.

In accordance with still another exemplary articulated yoke of the present invention, the supporting surface 10 and/or the surface of the supporting surface 10 that can be described by the recess 20 are surface-treated.

In accordance with yet another exemplary articulated yoke of the present invention, the supporting surface 10 and/or the recess 20 are provided with a perforation.

In accordance with still another exemplary articulated yoke of the present invention, the recess 20 is treated by percussion compression.

In accordance with yet another exemplary articulated yoke of the present invention, the bore 9 is designed as a blind hole.

**Page 17, line 24:**

Figure 3 illustrates, in a diagrammatically simplified view with reference to an extract from a yoke half 4.1a [4.1], which is reproduced in sectional view, the interaction with a tool spindle 24 [23] for machining the bore 9a [9], especially the supporting surface 10a [10] for incorporating the recesses 20 to be provided according to the invention. The incorporation of the recesses 20 takes place here by the interaction of a tool spindle 24 with the bore 9a [9]. The tool spindle 24 has a diameter d which corresponds to the diameter of the bore. The bore can also be already cut into the yoke half 4.1a [4.1] with this tool spindle 24. The cutting of the bore takes place here by guiding the tool spindle 24 with its axis A corresponding to the bearing axis or median axis  $A_L$  theoretically appropriate for the cylindrical embodiment of the bore 9a [9], which corresponds to the journal axis Z1 of the journal mounted in the articulated yoke. The incorporation of the recess 20 into the support surface 10a [10] which is formed by the bore 9a [9] then takes place by inclining the axis of the tool spindle 24 [A] relative to the theoretical median axis of the bore 9a [9] which, in the installed position of the journal, corresponds to the journal axis Z1 of the journal mounted in the articulated yoke. The angle of inclination E here indicates the position and size of the recess 20 produced in the supporting surface 10a of the bore 9a, in accordance with [its] the size and direction of the angle of inclination E based on a plane, [E] which can be described by the journal axis Z1 of the journal, which is theoretically mounted in the yoke half 4.1a [4.1] and the pivot axis G, which corresponds to the axis of symmetry or axis of rotation of the universal-joint propeller shaft, [, the position and size of the recess 20 produced in the supporting surface 10 of the bore 9 and, correspondingly,] The angle of inclination E also indicates the improvement in the force distribution in the roller-bearing arrangement under load as compared with a conventionally designed bearing arrangement, in particular a bore 9a [9] with a cylindrical supporting surface.

**Page 19, line 3:**

Preferably, the remachining of the bore 9a [9] is done by milling. Other methods of machining are, however, also conceivable, such as, for example grinding, erosion, compression,

especially percussion compression, shaving and perforation, it being possible in the last-named case for the supporting structure to be designed to be elastically or plastically deformable by means of the provision of a perforation.